



SEQUENCE LISTING

<110> Attie, Alan D.
Cook, Mark
Gray-Keller, Mark P.
Hayden, Michael R.
Pimstone, Simon
Brooks-Wilson, Angie

<120> Cholesterol Transport Gene

<130> 960296.96668

<140> PCT/US 00/30109
<141> 2000-01-11

<150> 60/215,564
<151> 2000-06-20

<150> 60/162,803
<151> 1999-01-11

<160> 19

<170> PatentIn Ver. 2.1

<210> 1
<211> 7862
<212> DNA
<213> Homo sapiens

<400> 1
gtccctgctg tgagctctgg ccgctgcctt ccaggcgtcc cgagccacac gctgggggtg 60
ctggctgagg gaacatggct tggcgccctc agctgagggtt gctgctgtgg aagaacctca 120
ctttcagaag aagacaaaaca tgtcagctgc tgctggaagt ggccctggcct ctatttatct 180
tcctgatcct gatctctgtt cggctgagct acccacccta tgaacaacat gaatgccatt 240
ttccaaataa agccatgccc tctgcagggaa cacttccttg ggttcagggg attatctgt 300
atgccaacaa cccctgtttc cgttacccga ctccctggga ggctcccgga gtttgtggaa 360
actttaacaa atccattgtg gctcgctgt tctcagatgc tcggaggctt cttttataaca 420
gccagaaaaga caccagcatg aaggacatgc gcaaagttct gagaacatta cagcagatca 480
agaaaatccag ctcaaacttg aagcttcaag atttcctgggt ggacaatgaa accttctctg 540
ggttcctgtt tcacaacccctc tctctcccaa agtctactgt ggacaagatg ctgagggtctg 600
atgtcattct ccacaaggta ttttgcaag gctaccaggat acatttgaca agtctgtgca 660
atggatcaaa atcagaagag atgattcaac ttgggtgacca agaagttct gagctttgtg 720
gcctaccaag ggagaaaactg gctgcagcag agcgagact tcgttccaac atggacatcc 780
tgaagccaat cctgagaaca ctaaactcta catctccctt cccgagcaag gagctggctg 840
aagccacaaa aacattgctg catagctttg ggactctggc ccaggagctg ttcagcatga 900
gaagctggag tgacatgcga caggaggtga tgttctgac caatgtgaac agctccagct 960

cctccaccca aatctaccag gctgtgtctc gtattgtctg cgggcattccc gagggagggg 1020
ggctgaagat caagtctctc aactggtagt aggacaacaa ctacaaagcc ctctttggag 1080
gcaatggcac tgaggaagat gctgaaacct tctatgacaa ctctacaact ccttactgca 1140
atgatttgat gaagaatttgc gactgttagtc ctctttcccg cattatctgg aaagctctga 1200
agccgcgtct cgttggaaat atcctgtata cacctgacac tccagccaca aggcaggtca 1260
tggctgaggt gaacaagacc ttccaggaac tggctgtgtt ccatgatctg gaaggcatgt 1320
gggaggaact cagccccaaat atctggaccc tcatggagaa cagccaagaa atggaccttgc 1380
tccggatgct gttggacagc agggacaaatg accacttttgc ggaacagcag ttggatggct 1440
tagattggac agcccaagac atcgtggcgt ttttggccaa gcacccagag gatgtccagt 1500
ccagtaatgg tttctgtgtt cacctggaga gaagcttca acgagactaa ccaggcaatc 1560
cgaccatcat ctcgcttcat ggagtgtgtc aacctgaaca agctagaacc catagcaaca 1620
gaagtctggc tcatcaacaa gtccatggag ctgctggatg agaggaagtt ctgggctgg 1680
attgtgttca ctggaatttac tccaggcagc attgagctgc cccatcatgt caagtacaag 1740
atccgaatgg acattgacaa tgtggaggg acaaataaaa tcaaggatgg gtactggac 1800
cctggctcctc gagctgaccc ctttggggac atgcggtaac tctggggggg ctccgcctac 1860
ttgcaggatg tggtagggca ggcaatcatc aggggtctga cgggcaccga gaagaaaact 1920
ggtgtctata tgcacacatg gcccttatccc tggttacgttgc atgacatctt tctgcgggtg 1980
atgagccgtt caatccccctt cttcatgacg ctggccttggaa tttactcagt ggctgtgatc 2040
atcaaggggca tcgtgtatga gaaggaggca cggctgaaag agaccatgac gatcatggc 2100
ctggacaaca gcatccctgt gtttagctgg ttcattagta gcctcatttcc tcttcttgg 2160
agcgctggcc tgcttagtggt catcctgaag ttaggaaacc tgctgcccta cagtatccc 2220
agcgtgggtt ttgtcttccct gtccgtgtt gctgtggta caatcctgca gtgcttcctg 2280
attagcacac tcttctccag agccaaacctg gcagcagccgt gtggggggca tcatctactt 2340
cacgctgtac ctggccctacg tcctgtgttgc ggcattggcag gactacgtgg gcttcacact 2400
caagatcttgc gctagcctgc tgcgttgc tggcttggg tttggctgtg agtactttgc 2460
ccttttgag gaggcaggca ttggagtgca gtgggacaac ctgtttgaga gtctgtgg 2520
ggaagatggc ttcaatctca ccacttcggc ctccatgatg ctgtttgaca ctttcctcta 2580
tgggggtatg acctggtaca ttgaggctgt ctgtttccaggc cagtagggaa ttcccaggcc 2640
ctggtatttt ctttgcacca agtccctactg gtttggcggag gaaagtgtatg agaagagcca 2700
ccctgggttcc aaccagaaga gaatatcaga aatctgcatttgc gaggagggac ccaccactt 2760
gaagctgggc gtgtccatttca agaacctggt aaaagtctac cgagatggga tgaagggtggc 2820
tgcgtatggc ctggcactga atttttatga gggccagatc accttccttcc tggggccacaa 2880
tggagcgggg aagacgacca ccatgtcaat cctgaccggg ttgttcccccc cgaccccg 2940
caccgcctac atcctggaa aagacattcg ctctgagatg agcaccatcc ggcagaacact 3000
gggggtctgt ccccagcata acgtgtgtt tgacatgttgc actgtcgaag aacacatctg 3060
gttctatgcc cgcttgaaag ggctctctga gaagcacgtg aaggcggaga tggagcagat 3120
ggccctggat gtgggttgc catcaagccaa gctgaaaagc aaaacaagcc agctgtcagg 3180
tggaaatgcag agaaagctat ctgtggccctt ggcctttgtc gggggatcta aggttgcatt 3240
tctggatgaa cccacagctg gtgtggaccc ttactcccgc agggaaatat gggagctgt 3300
gctgaaatac cgacaaggcc gcaccattat tctctctaca caccacatgg atgaagcgga 3360
cgtcctgggg gacaggatttgc ccatcatctc ccatggggaa ctgtgtgttgc tgggctccctc 3420
cctgtttctg aagaaccaggc tgggaaacagg ctactacccgt accttggtca agaaagatgt 3480
ggaatctcc ctcagttccct gcagaaaacag tagtagcact gtgtcataacc tgaaaaagga 3540
ggacagtttgc tctcagagca gttctgtatgc tggcctgggc agcgaccatg agagtgcac 3600
gctgaccatc gatgtctctg ctatctccaa cctcatcagg aagcatgtgtt ctgaagcccg 3660
gctgggtggaa gacatagggc atgagctgac ctatgtgttgc ccatatgaag ctgctaagga 3720
gggagccctt gtggaaactt ttcattagat tgatgaccgg ctctcagacc tgggcttgc 3780
tagttatggc atctcagaga cgaccctggaa agaaatatttgc ctcaaaqgtgg ccqaaqqaq 3840

a
cont.

tggggtggat gctgagacct cagatggta cttgccagca agacgaaaca ggcgggcctt 3900
cggggacaag cagagctgtc ttcccccgtt cactgaagat gatgctgtc atccaaatga 3960
ttctgacata gaccagaat ccagagagac agacttgctc agtggatgg atggcaaagg 4020
gtcctaccag gtgaaaggct ggaaacttac acagcaacag tttgtggccc ttttgtggaa 4080
gagactgcta attgccagac ggagtccgaa aggattttt gctcagattt tcttgccagc 4140
tgtgtttgtc tgcattgccc ttgtgttcag cctgatcgta ccacccttg gcaagtaccc 4200
cagcctggaa cttcagccct ggtatgtacaa cgaacagtac acatttgtca gcaatgtgc 4260
tcctgaggac acgggaaccc tggaacttctt aaacgccc accaaagacc ctggcttcgg 4320
gaccgcgtgt atgaaaggaa acccaatccc agacacgccc tgccaggcag gggaggaaga 4380
gtggaccact gccccagttc cccagaccat catggaccc tcctcagaatg ggaactggac 4440
aatgcagaac ctttcacactg catgccagtg tagcagcgcac aaaatcaaga agatgctgcc 4500
tgtgtgtccc ccaggggcag gggggctgcc tcctccacaa agaaaaacaaa acactgcaga 4560
tatccttcag gacctgacag gaagaaacat ttccggattat ctggtaaga cgtatgtgca 4620
gatcatagcc aaaagcttaa agaacaagat ctgggtgaat gagtttaggt atggcggctt 4680
ttccctgggt gtcaagtaata ctcaagcact tcctccgagt caagaagttt atgatgcccc 4740
caaacaatg aagaaacacc taaagctggc caaggacagt tctgcagatc gatttctcaa 4800
cagcttggga agatttatga caggactgga caccagaaat aatgtcaagg tgtggttcaa 4860
taacaagggc tggcatgcaa tcagctctt cctgaatgtc atcaacaatg ccattctccg 4920
ggccaacctg caaaaggag agaacccctag ccattatgga attactgctt tcaatcatcc 4980
cctgaatctc accaagcago agctctcaga ggtggctctg atgaccacat cagtggatgt 5040
ccttgtgtcc atctgtgtca tccttgcaat gtccttcgtc ccagccagct ttgtcgtatt 5100
cctgatccag gagcgggtca gcaaagcaaa acacctgcag ttcatcagtg gagtgaagcc 5160
tgtcatctac tggctctcta attttgtctg ggatatgtgc aattacgtt tccctgcccc 5220
actggtcatt atcatcttca tctgcttcca gcagaagtcc tatgtgtcct ccaccaatct 5280
gcctgtgtca gcccttctac ttttgctgttca tgggtggtca atcacaccc tcacgtaccc 5340
agcctccctt gtgttcaaga tccccagcac agcctatgtg gtgctcacca gcgtgaacct 5400
cttcattggc attaatggca gcgtggccac ctttgtctg gagctgttca ccgacaataa 5460
gctgaataat atcaatgata tcctgaagtc cgtgttctt atcttccac attttgccct 5520
gggacgaggg ctcatcgaca tggtaaaaa ccaggcaatg gctgatgcc tggaaaggaa 5580
tggggagaat cgctttgtgt caccattatc ttggacttg gtggacgaa acctcttcgc 5640
catggccgtg gaaggggtgg tggcttcct cattactgtt ctgatccagt acagattctt 5700
catcagggccc agacctgtaa atgcaaaagct atctccctctg aatgtatgaag atgaagatgt 5760
gaggcgggaa agacagagaa ttcttgatgg tggaggccag aatgacatct tagaaatcaa 5820
ggagttgacg aagatataa gaaggaagcg gaagcctgtc gttgacagga tttgcgtggg 5880
cattccctctt ggtgagtgct ttggcttcct gggagttat gggctggaa aatcatcaac 5940
tttcaagatg ttaacaggag ataccactgt taccagagga gatgcttcc ttaacaaaaa 6000
tagtatctt tcaaacatcc atgaagtaca tcagaacatg ggctactgcc ctcagttga 6060
tgccatcaca gagctgtga ctggagaga acacgtggag ttcttgccc ttttgagagg 6120
agtcccagag aaagaagttt gcaaggttgg tggatggcgtt attcgaaac tggccctcg 6180
gaagtatggaa gaaaaatatg ctggtaacta tagtggaggg aacaaacgcg agctctctac 6240
agccatggct ttgatccggc ggcctctgt ggtgtttctg gatgaaccca ccacaggcat 6300
ggatcccaaa gcccggcggt tcttggaa ttgtgcccta agtggatgtca aggagggag 6360
atcagtagtg cttacatctc atagtagtggaa agaatgtgaa gctcttgca ctaggatggc 6420
aatcatggtc aatggaaagggt tcaggtgcct tggcagtgta cagcatctaa aaaatagtt 6480
tggagatgtt tatacaatag ttgtacaaat agcagggtcc aacccggacc tgaagcctgt 6540
ccaggatttcc ttggacttg catttcctgg aagtgttcta aaagagaaac accggaacat 6600
gctacaatac cagttccat cttcattatc ttctctggcc aggatattca gcatcctctc 6660
ccagagcaaa aagcgactcc acatagaaga ctactctgtt tctcagacaa cacttgacca 6720

agtatttgcg aactttgcca aggacccaaag tggatgtac cacttaaaag acctctcatt 6780
acacaaaaaac cagacagtag tggacgttgc agttctcaca tctttctac agatgagaa 6840
agtgaagaa agctatgtat gaagaatcct gttcatacg ggtggctgaa agttaagagg 6900
aactagactt tcctttgcac catgtgaagt gttgtggaga aaagagccag aagttgtat 6960
gggagaagtt aaactggata ctgtactgat actattcaat gcaatgcaat tcaatgcaat 7020
gaaaacaaaa ttccattaca ggggcagtgc cttttagcc tatgtcttg atggctctca 7080
agtgaagac ttgaatttag ttttttacct atacctatgt gaaactctat tatggAACCC 7140
aatggacata tggtttgaa ctcacactt tttttttt tttgtcctg tgtattctca 7200
ttgggggtgc aacaataatt catcaagtaa tcatggccag cgattattga tcaaaaatcaa 7260
aaggtaatgc acatcctcat tcactaagcc atgccatgcc caggagactg gtttcccgg 7320
gacacatcca ttgctggcaa tgagtgtcc agagttatta gtgccaagtt tttcagaaag 7380
tttgaagcac catgggtgtt catgctcaact tttgtgaaag ctgctctgct cagagtctat 7440
caacattgaa tatcagttga cagaatggtg ccatgcgtgg ctaacatcct gctttgatTC 7500
cctctgataa gctgttctgg tggcagtaac atgcaacaaa aatgtgggtg tctccaggca 7560
cgggaaactt gttccattt ttatattgtc ctatgcttcg agccatgggt ctacagggtc 7620
atccttatga gactcttaaa tatacttaga tcctggtaag aggcaaagaa tcaacagcca 7680
aactgctggg gctgcaactg ctgaagccag ggcattggat taaagagatt gtgcgttcaa 7740
acctaggaa gcctgtgccc atttgcctg actgtctgct aacatggtaactgcacatctc 7800
aagatgtta tctgacacaa gtgttattt tctggtttt tgaattaatc tagaaaaatga 7860
aa 7862

<210> 2
<211> 2258
<212> PRT
<213> Homo sapiens

<400> 2

Met	Ala	Cys	Trp	Pro	Gln	Leu	Arg	Leu	Leu	Leu	Trp	Lys	Asn	Leu	Thr
1				5					10				15		
Phe Arg Arg Arg Gln Thr Cys Gln Leu Leu Leu Glu Val Ala Trp Pro															
				20				25				30			
Leu Phe Ile Phe Leu Ile Leu Ile Ser Val Arg Leu Ser Tyr Pro Pro															
				35				40				45			
Tyr Glu Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala															
				50			55			60					
Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn Ala Asn Asn Pro															
				65			70			75		80			
Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn															
				85			90			95					
Phe Asn Lys Ser Ile Val Ala Arg Leu Phe Ser Asp Ala Arg Arg Leu															
				100			105			110					

A
Cont

Leu Leu Tyr Ser Gln Lys Asp Thr Ser Met Lys Asp Met Arg Lys Val
115 120 125

Leu Arg Thr Leu Gln Gln Ile Lys Lys Ser Ser Ser Asn Leu Lys Leu
130 135 140

Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly Phe Leu Tyr His
145 150 155 160

Asn Leu Ser Leu Pro Lys Ser Thr Val Asp Lys Met Leu Arg Ala Asp
165 170 175

Val Ile Leu His Lys Val Phe Leu Gln Gly Tyr Gln Leu His Leu Thr
180 185 190

Ser Leu Cys Asn Gly Ser Lys Ser Glu Glu Met Ile Gln Leu Gly Asp
195 200 205

Gln Glu Val Ser Glu Leu Cys Gly Leu Pro Arg Glu Lys Leu Ala Ala
210 215 220

Ala Glu Arg Val Leu Arg Ser Asn Met Asp Ile Leu Lys Pro Ile Leu
225 230 235 240

Arg Thr Leu Asn Ser Thr Ser Pro Phe Pro Ser Lys Glu Leu Ala Glu
245 250 255

Ala Thr Lys Thr Leu Leu His Ser Leu Gly Thr Leu Ala Gln Glu Leu
260 265 270

Phe Ser Met Arg Ser Trp Ser Asp Met Arg Gln Glu Val Met Phe Leu
275 280 285

Thr Asn Val Asn Ser Ser Ser Ser Thr Gln Ile Tyr Gln Ala Val
290 295 300

Ser Arg Ile Val Cys Gly His Pro Glu Gly Gly Leu Lys Ile Lys
305 310 315 320

Ser Leu Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Leu Phe Gly Gly
325 330 335

Asn Gly Thr Glu Glu Asp Ala Glu Thr Phe Tyr Asp Asn Ser Thr Thr
340 345 350

Pro Tyr Cys Asn Asp Leu Met Lys Asn Leu Glu Ser Ser Pro Leu Ser
355 360 365

Arg Ile Ile Trp Lys Ala Leu Lys Pro Leu Leu Val Gly Lys Ile Leu
370 375 380

Tyr Thr Pro Asp Thr Pro Ala Thr Arg Gln Val Met Ala Glu Val Asn
385 390 395 400

Lys Thr Phe Gln Glu Leu Ala Val Phe His Asp Leu Glu Gly Met Trp
405 410 415

Glu Glu Leu Ser Pro Lys Ile Trp Thr Phe Met Glu Asn Ser Gln Glu
420 425 430

Met Asp Leu Val Arg Met Leu Leu Asp Ser Arg Asp Asn Asp His Phe
435 440 445

Trp Glu Gln Gln Leu Asp Gly Leu Asp Trp Thr Ala Gln Asp Ile Val
450 455 460

Ala Phe Leu Ala Lys His Pro Glu Asp Val Gln Ser Ser Asn Gly Ser
465 470 475 480

Val Tyr Thr Trp Arg Glu Ala Phe Asn Glu Thr Asn Gln Ala Ile Arg
485 490 495

Thr Ile Ser Arg Phe Met Glu Cys Val Asn Leu Asn Lys Leu Glu Pro
500 505 510

Ile Ala Thr Glu Val Trp Leu Ile Asn Lys Ser Met Glu Leu Leu Asp
515 520 525

Glu Arg Lys Phe Trp Ala Gly Ile Val Phe Thr Gly Ile Thr Pro Gly
530 535 540

Ser Ile Glu Leu Pro His His Val Lys Tyr Lys Ile Arg Met Asp Ile
545 550 555 560

Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly Tyr Trp Asp Pro
565 570 575

Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Arg Tyr Val Trp Gly Gly
580 585 590

Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile Ile Arg Val Leu
595 600 605

Thr Gly Thr Glu Lys Lys Thr Gly Val Tyr Met Gln Gln Met Pro Tyr
610 615 620

Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met Ser Arg Ser Met
625 630 635 640

Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val Ala Val Ile Ile
645 650 655

Lys Gly Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys Glu Thr Met Arg
660 665 670

Ile Met Gly Leu Asp Asn Ser Ile Leu Trp Phe Ser Trp Phe Ile Ser
675 680 685

Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val Ile Leu
690 695 700

Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser Val Val Phe Val
705 710 715 720

Phe Leu Ser Val Phe Ala Val Val Thr Ile Leu Gln Cys Phe Leu Ile
725 730 735

Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Ile
740 745 750

Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Ala Trp Gln Asp Tyr Val
755 760 765

Gly Phe Thr Leu Lys Ile Phe Ala Ser Leu Leu Ser Pro Val Ala Phe
770 775 780

Gly Phe Gly Cys Glu Tyr Phe Ala Leu Phe Glu Glu Gln Gly Ile Gly
785 790 795 800

Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu Asp Gly Phe
805 810 815

Asn Leu Thr Thr Ser Val Ser Met Met Leu Phe Asp Thr Phe Leu Tyr
820 825 830

Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly Gln Tyr Gly
835 840 845

Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr Trp Phe Gly
850 855 860

Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln Lys Arg Ile
865 870 875 880

Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys Leu Gly Val
885 890 895

Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met Lys Val Ala
900 905 910

Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile Thr Ser Phe
915 920 925

Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Met Ser Ile Leu Thr
930 935 940

Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu Gly Lys Asp
945 950 955 960

Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly Val Cys Pro
965 970 975

Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu His Ile Trp
980 985 990

Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val Lys Ala Glu
995 1000 1005

Met Glu Gln Met Ala Leu Asp Val Gly Leu Pro Ser Ser Lys Leu Lys
1010 1015 1020

Ser Lys Thr Ser Gln Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val
1025 1030 1035 1040

Ala Leu Ala Phe Val Gly Gly Ser Lys Val Val Ile Leu Asp Glu Pro
1045 1050 1055

Thr Ala Gly Val Asp Pro Tyr Ser Arg Arg Gly Ile Trp Glu Leu Leu
1060 1065 1070

Leu Lys Tyr Arg Gln Gly Arg Thr Ile Ile Leu Ser Thr His His Met
1075 1080 1085

Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile Ser His Gly
1090 1095 1100

Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn Gln Leu Gly
1105 1110 1115 1120

Thr Gly Thr Thr Leu Thr Leu Val Lys Lys Asp Val Glu Ser Ser Leu
1125 1130 1135

Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu Lys Lys Glu
1140 1145 1150

Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly Ser Asp His
1155 1160 1165

Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser Asn Leu Ile
1170 1175 1180

Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile Gly His Glu
1185 1190 1195 1200

Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly Ala Phe Val
1205 1210 1215

Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu Gly Ile Ser
1220 1225 1230

Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe Leu Lys Val
1235 1240 1245

Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly Thr Leu Pro
1250 1255 1260

Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser Cys Leu Arg
1265 1270 1275 1280

Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser Asp Ile Asp
1285 1290 1295

Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp Gly Lys Gly
1300 1305 1310

Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln Phe Val Ala
1315 1320 1325

Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg Lys Gly Phe
1330 1335 1340

Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile Ala Leu Val
1345 1350 1355 1360

Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser Leu Glu Leu
1365 1370 1375

Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser Asn Asp Ala
1380 1385 1390

Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu Thr Lys Asp
1395 1400 1405

Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile Pro Asp Thr
1410 1415 1420

Pro Cys Gln Ala Gly Glu Glu Trp Thr Thr Ala Pro Val Pro Gln
1425 1430 1435 1440

Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met Gln Asn Pro
1445 1450 1455

Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys Met Leu Pro
1460 1465 1470

Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln Arg Lys Gln
1475 1480 1485

Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn Ile Ser Asp
1490 1495 1500

Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser Leu Lys Asn
1505 1510 1515 1520

Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser Leu Gly Val
1525 1530 1535

Ser Asn Thr Trp Ala Leu Pro Pro Ser Gln Glu Val Asn Asp Ala Ile
1540 1545 1550

a
cont

Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser Ser Ala Asp
1555 1560 1565

Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu Asp Thr Arg
1570 1575 1580

Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His Ala Ile Ser
1585 1590 1595 1600

Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala Asn Leu Gln
1605 1610 1615

Lys Gly Glu Asn Pro Ser His Trp Gly Ile Thr Ala Phe Asn His Pro
1620 1625 1630

Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Leu Met Thr Thr
1635 1640 1645

Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala Met Ser Phe
1650 1655 1660

Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg Val Ser Lys
1665 1670 1675 1680

Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val Ile Tyr Trp
1685 1690 1695

Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val Pro Ala Thr
1700 1705 1710

Leu Val Ile Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser Tyr Val Ser
1715 1720 1725

Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu Tyr Gly Trp
1730 1735 1740

Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe Lys Ile Pro
1745 1750 1755 1760

Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe Ile Gly Ile
1765 1770 1775

Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr Asp Asn Lys
1780 1785 1790

I
a
cont

Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu Ile Phe Pro
1795 1800 1805

His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys Asn Gln Ala
1810 1815 1820

Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe Val Ser Pro
1825 1830 1835 1840

Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met Ala Val Glu
1845 1850 1855

Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr Arg Phe Phe
1860 1865 1870

Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu Asn Asp Glu
1875 1880 1885

Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp Gly Gly Gly
1890 1895 1900

Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile Tyr Arg Arg
1905 1910 1915 1920

Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile Pro Pro Gly
1925 1930 1935

Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Ser Ser Thr
1940 1945 1950

Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly Asp Ala Phe
1955 1960 1965

Leu Asn Lys Asn Ser Ile Leu Ser Asn Ile His Glu Val His Gln Asn
1970 1975 1980

Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu Leu Thr Gly
1985 1990 1995 2000

Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val Pro Glu Lys
2005 2010 2015

Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu Gly Leu Val
2020 2025 2030

Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly Asn Lys Arg
2035 2040 2045

Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro Val Val Phe
2050 2055 2060

Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg Arg Phe Leu
2065 2070 2075 2080

Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser Val Val Leu
2085 2090 2095

Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Met Ala
2100 2105 2110

Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val Gln His Leu
2115 2120 2125

Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg Ile Ala Gly
2130 2135 2140

Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly Leu Ala Phe
2145 2150 2155 2160

Pro Gly Ser Val Leu Lys Glu Lys His Arg Asn Met Leu Gln Tyr Gln
2165 2170 2175

Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser Ile Leu Ser
2180 2185 2190

Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val Ser Gln Thr
2195 2200 2205

Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln Ser Asp Asp
2210 2215 2220

Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr Val Val Asp
2225 2230 2235 2240

Val Ala Val Leu Thr Ser Phe Leu Gln Asp Glu Lys Val Lys Glu Ser
2245 2250 2255

Tyr Val

<210> 3

<211> 18

<212> PRT

<213> Homo sapiens

<400> 3

Lys Glu Ala Arg Leu Lys Glu Thr Met Arg Ile Met Gly Leu Asp Asn
1 5 10 15

Ser Ile

a
1
Cont

<210> 4

<211> 5

<212> PRT

<213> Homo sapiens

<400> 4

Phe Ser Arg Ala Asn
1 5

<210> 5

<211> 26

<212> PRT

<213> Homo sapiens

<400> 5

Ala Leu Phe Glu Glu Gln Gly Ile Gly Val Gln Trp Asp Asn Leu Phe
1 5 10 15

Glu Ser Pro Val Glu Glu Asp Gly Phe Asn
20 25

<210> 6

<211> 284

<212> PRT

<213> Homo sapiens

<400> 6

Phe Gly Lys Tyr Pro Ser Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu
1 5 10 15

Gln Tyr Thr Phe Val Ser Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu
20 25 30

Glu Leu Leu Asn Ala Leu Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys
35 40 45

Met Glu Gly Asn Pro Ile Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu
50 55 60

Glu Trp Thr Thr Ala Pro Val Pro Gln Thr Ile Met Asp Leu Phe Gln
65 70 75 80

Asn Gly Asn Trp Thr Met Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser
85 90 95

Ser Asp Lys Ile Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly
100 105 110

Gly Leu Pro Pro Pro Gln Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln
115 120 125

Asp Leu Thr Gly Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val
130 135 140

Gln Ile Ile Ala Lys Ser Leu Lys Asn Lys Ile Trp Val Asn Glu Phe
145 150 155 160

Arg Tyr Gly Gly Phe Ser Leu Gly Val Ser Asn Thr Gln Ala Leu Pro

165 170 175

Pro Ser Gln Glu Val Asn Asp Ala Ile Lys Gln Met Lys Lys His Leu
180 185 190

Lys Leu Ala Lys Asp Ser Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly
195 200 205

Arg Phe Met Thr Gly Leu Asp Thr Arg Asn Asn Val Lys Val Trp Phe
210 215 220

Asn Asn Lys Gly Trp His Ala Ile Ser Ser Phe Leu Asn Val Ile Asn
225 230 235 240

Asn Ala Ile Leu Arg Ala Asn Leu Gln Lys Gly Glu Asn Pro Ser His
245 250 255

Tyr Gly Ile Thr Ala Phe Asn His Pro Leu Asn Leu Thr Lys Gln Gln
260 265 270

Leu Ser Glu Val Ala Leu Met Thr Thr Ser Val Asp
275 280

<210> 7
<211> 23
<212> PRT
<213> Homo sapiens

*I
a
Am*

<400> 7
Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala
1 5 10 15

Ser Phe Val Phe Lys Ile Pro
20

<210> 8
<211> 29
<212> PRT
<213> Homo sapiens

<400> 8
Val Lys Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn
1 5 10 15

Arg Phe Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg
20 25

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 9
gtcacttccc aaacaaagct a

21

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR Primer

<400> 10
atggacgcat tgaagttcc

20

<210> 11
<211> 15
<212> DNA
<213> chicken

<400> 11
accagggaaa tctcc

15

<210> 12
<211> 15
<212> DNA
<213> chicken

<400> 12
accagggaaa tctcc

15

<210> 13
<211> 15
<212> PRT
<213> Homo sapiens

<400> 13

Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn Phe
1 5 10 15

<210> 14

<211> 15
<212> PRT
<213> mouse

<400> 14

Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn Phe
1 5 10 15

<210> 15

<211> 15
<212> PRT
<213> Takifugu Rubripes

<400> 15

Ser His Pro Thr Leu Gly Glu Thr Pro Gly Gln Val Asn Asn Phe
1 5 10 15

<210> 16

<211> 15
<212> PRT
<213> chicken

<400> 16

Arg Tyr Pro Thr Pro Gly Glu Ser Pro Gly Ile Val Gly Asn Phe
1 5 10 15

a
cm

<210> 17

<211> 15
<212> PRT
<213> chicken

<400> 17

Arg Tyr Pro Thr Pro Gly Lys Ser Pro Gly Ile Val Gly Asn Phe
1 5 10 15

<210> 18

<211> 45

<212> DNA
<213> chicken

<400> 18
cgctacccaa caccagggaa atctcctgggt attgttggaa acttc

45

<210> 19
<211> 45
<212> DNA
<213> chicken

a'
Cont
<400> 19
cgctacccaa caccagggaa atctcctgggt attgttggaa acttc

45